

Abstract of the Disclosure

Isolated nucleic acid molecules, designated MR nucleic acid molecules, which encode novel MR proteins from *Corynebacterium glutamicum* are described. The invention also provides antisense nucleic acid molecules, recombinant expression vectors containing MR nucleic acid molecules, and host cells into which the expression vectors have been introduced. The invention still further provides isolated MR proteins, mutated MR proteins, fusion proteins, antigenic peptides and methods for the improvement of production of a desired compound from *C. glutamicum* based on genetic engineering of MR genes in this organism.